

Appl. No. 09/918,421
Amdt. dated July 23, 2003
Reply to Office Action of January 27, 2003

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

6. (currently amended) A method of ~~determining a~~ selecting promising candidate nucleotide sequence sequences of an analytical oligo nucleic acid for use in an analysis of a target nucleic acid, the promising candidate nucleotide nucleotide sequences have a high possibility of including a suitable nucleotide sequence of the analytical oligo nucleic acid, the method comprising:

(a) ~~a first calculation step of entering a nucleotide sequence of a target nucleic acid to be analyzed into a computer;~~

(b) calculating an occurrence frequency of each of n unit sequences occurring on a the nucleotide sequence of ~~a the~~ target nucleic acid ~~to be analyzed on the basis of a value of 4ⁿ which~~ correspond corresponds to all of the n unit sequences formed of n nucleotide sequences, wherein n is an integer of 2 or more;

~~(b) a first extraction step of~~ (c) extracting a sequence all candidate sequences having p number of nucleotides and are present on the nucleotide sequence sequences of a the target

Appl. No. 09/918,421
Amdt. dated July 23, 2003
Reply to Office Action of January 27, 2003

nucleic acid, said wherein p is an integer larger than n by m ,
wherein and m is an integer of 1 or more;

~~(c) a second calculation step of (d) extracting n unit
sequences occurring on the contained in each of the candidate
sequence sequences; extracted in the first extraction step and
obtaining an~~

(e) calculating an occurrence frequency index of the
candidate sequence sequences on the nucleotide sequence of the
target nucleic acid on the basis of the occurrence frequency of
each of the n unit sequence calculated in step (b), wherein a
lower occurrence frequency index indicates a higher specificity
of the candidate sequences to the target nucleic acid; and

~~(d) a second extraction step of (f) selecting, a single or a
plurality of from the candidate nucleotide sequences extracted in
step (c), each of the candidate nucleotide sequences each having
a low lower occurrence frequency index based on than a certain
threshold value, of the occurrence frequency index obtained from
the second calculation step; wherein the lower the occurrence
frequency index, the higher the specificity
thereby obtaining the promising candidate nucleotide sequences,
the certain threshold value being arbitrarily set so that the
promising candidate nucleotide sequences are substantially fewer
than the candidate nucleotide sequences obtained from step (c)~~

COPY

Appl. No. 09/918,421
Amdt. dated July 23, 2003
Reply to Office Action of January 27, 2003.

and the suitable nucleotide sequence being included in the promising candidates.

7. (original) The method according to claim 6, wherein said n is 5, 6, or 7.

8. (currently amended) The method according to claim 6, further comprising ~~a third extraction step of selecting, from the promising candidate nucleotide sequences of step (f), a promising candidate sequence~~ nucleotide sequences having a low stability of a molecular secondary structure which is not capable of forming a stable secondary structure, and whereby ~~a sequence more promising candidate nucleotide sequences which is~~ are capable of readily hybridizing with ~~a the~~ target nucleic acid under hybridization conditions ~~is are~~ selected.

9. (previously presented) The method according to claim 8, wherein the stability of the molecular secondary structure is determined by at least one property selected from the group consisting of (i) thermal stability as measured by a value of T_m and (ii) stability of an intramolecular secondary structure.

COPY

Appl. No. 09/918,421

Amtd. dated July 23, 2003

Reply to Office Action of January 27, 2003

10. (currently amended) The method according to claim 9, wherein ~~[[,]] in said third extraction step,~~ a nucleotide sequence having the T_m value falling within a predetermined range is selected from the ~~potential~~ promising candidate nucleotide sequences and forming which forms an unstable secondary structure is further selected.

11. (currently amended) The method according to any one of claims 6 to 10, wherein all of the calculations involved in steps (a) to ~~(d)~~ (f) are sequentially performed by a computer.

12. (previously presented) The method according to any one of claims 6 to 10, wherein said nucleotide sequence of an analytical oligo nucleic acid is used in (i) a PCR method for detecting a specific nucleotide sequence present in a nucleotide sequence of a nucleic acid by using an enzyme reaction which requires hybridization reactions of a nucleic acid, or (ii) in a hybridization reaction of a nucleic acid employing a probe.

COPY